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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,666	12/17/2001	Andre Van Schyndel	NTL-3.2.178/4233(14915RO)	1810

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EXAMINER

LE, TOAN M

ART UNIT	PAPER NUMBER
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2863

DATE MAILED: 04/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/022,666

Applicant(s)

SCHYNDEL, ANDRE VAN

Examiner

Toan M Le

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4-5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 8-15, and 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Davies.

Referring to claims 1 and 10, Davies discloses a method and an apparatus for compensating, in the electrical domain, for chromatic dispersion of an optical signal (col. 4, lines 12-17; and col. 6, lines 60-65), comprising the steps of: a) converting the optical signal to an electrical signal (col. 7, lines 2-26); b) amplifying part of the spectrum of the electrical signal by a factor derived from its frequency (col. 7, lines 30-47; col. 8, lines 32-35; and col. 9, lines 13-15); and selectively inverting the phase of regions of the spectrum to thereby allow recovery of the transmitted data (col. 7, lines 59-61; col. 8, lines 40-46; and col. 10, lines 1-4).

As to claims 2 and 11, Davies discloses a method of compensating, in the electrical domain, for chromatic dispersion of an optical signal, wherein the step of amplifying and selectively inverting is described by a transfer function represented by

$$\sec(\pi DL\lambda_o^2 f^2/c)$$

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where  $D$  is the dispersion,  $L$  is the length of the fiber,  $\lambda_0$  is the wavelength of the light source,  $c$  is the speed of light, and  $f$  is the frequency of the Fourier component (col. 7, lines 66-67; and col. 8, lines 1-9).

Referring to claims 3, 6, 12, and 15, Davies discloses a method and an apparatus for compensating, in the electrical domain, for chromatic dispersion of an optical signal, wherein the optical signal comprises a non-infinite extinction ratio, which is present in the optical prior to transmission (col. 7, lines 6-16).

As to claims 4-5 and 13-14, Davies discloses a method and an apparatus for compensating, in the electrical domain, for chromatic dispersion of an optical signal, further comprising the step of modifying the electrical signal by introducing a non-linear element, which is a square root of the electrical signal prior to application of the transfer function (col. 7, lines 6-26).

Referring to claims 8 and 17, Davies discloses a method and an apparatus for compensating, in the electrical domain, for chromatic dispersion of an optical signal, wherein the compensation method is implemented in software (col. 7, lines 11-13; figure 2).

As to claims 9 and 18, Davies discloses a method and an apparatus for compensating, in the electrical domain, for chromatic dispersion of an optical signal, wherein the transfer function is used as a diagnostic tool for measuring the chromatic dispersion characteristics of an optical channel (col. 6, lines 39-50; equation 10).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davies in view of Kawada et al..

Referring to claims 7 and 16, Davies discloses a method and an apparatus for compensating, in the electrical domain, for chromatic dispersion of an optical signal, wherein the transfer function is implemented by means of antidispersive filter 32 (figure 2).

Davies does not mention the transfer function is implemented by means of an FIR-IIR filter.

Kawada et al. disclose an adaptive filter in the form of FIR-IIR filter for echo cancellation (col. 2, lines 27-41; and col. 6, lines 35-36).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have applied FIR-IIR filter as described in the Kawada et al. reference into the method of Davies for minimizing phase dispersion to maximize the recovery of the transmitted data signal.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,487,352 to Sobiski et al.

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“A Fiber Chromatic Dispersion Compensation Technique with an Optical SSB Transmission in Optical Homodyne Detection System”, Yonenaga et al., 1993, IEEE Photonics Technology Letters, Vol. 5, Issue 8, Pages 949-951


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M Le whose telephone number is (703) 305-4016. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (703) 308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0655.

Toan Le

April 21, 2003

  
John Barlow  
Supervisory Patent Examiner  
Technology Center 2800